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Effects of stocking density, angel wing and sex on feather weight, blood biochemical parameters and intestinal tissue in White Roman geese [1]

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Abstract

This study was to investigate the effects of stocking density, angel wing (AW) and sex on body weight, feather weight, intestinal tissue and blood biochemical parameters in White Roman geese. The medium and high stocking density treatment groups were 1.33 and 1.66 times the low density group respectively. The experiment was conducted under a split-plot design which consisted of three stock densities randomly assigned in 12 pens and a total of 384 geese were collected. There were 4 pens in each group, and the numbers of male and female geese in each pen were equal. The pen was the main plot and the bird was the subplot. Each pen was divided into 2 genders (male and female geese) × 2 species of geese (whether with angel wing or not). In the experiment, natural light was used, and both feed and drinking water were provided ad libitum. The results showed that there were no influences between the 3 stocking densities in the incidence of AW of geese. The birds with AW tended to have a higher body weight after eighteen hours feed-deprived at 14 weeks old, than those with normal wing (NW) ($P < 0.10$). The birds with AW had a significantly lighter feather weight on left wing at 14 weeks old, than those in NW ($P < 0.05$). The ganders had a significantly lighter feather weight in the left wing at 14 weeks old than those in female geese ($P < 0.001$).

Low stocking density of White Roman geese had a significantly higher uric acid (UA) contents of serum at 14 week old than those in high stocking density ($P < 0.05$), and tended to have a lower cholesterol (CHOL) contents of serum than those in medium and high stocking density ($P < 0.10$). The ganders had a significantly higher CHOL, high density lipoprotein-cholesterol (HDL-C) and low density lipoprotein-cholesterol (LDL-C) contents of serum at 8 week old than those in female geese; and the ganders also had a significantly higher CHOL and HDL-C contents of serum at 14 weeks old than those in the female geese. The birds with AW had a significantly shallower crypt depth of duodenum at 14 weeks old than those with NW ($P < 0.05$). In conclusion, stocking density of White Roman geese could affect UA and CHOL of serum. The birds with AW had a lighter feather weight on wings than those with NW. The body weight and blood biochemical parameter of White Roman geese were affected by sex.

Key words: Angel wing, Feather, Intestinal tissue, Sex, Stocking density, White Roman geese.

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